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A REVISION OF THE SUBSPECIES OF *SPOROPHILA* ("*ORYZOBORUS*") *ANGOLENSIS* (AVES: EMBERIZINAE)

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Abstract.—Because of similarities in plumage and morphology, and the occurrence of several "intergeneric" hybrids, the genus *Oryzoborus* is merged with *Sporophila*. *Sporophila maximiliani parkesi* nom. nov. is proposed to replace the preoccupied name *Oryzoborus crassirostris magnirostris* Phelps and Phelps 1950. Within *Sporophila angolensis* there are two groups, distinguished by the adult male plumage. In the *funerea* subspecies group, currently considered monotypic, four subspecies are now recognized, based on female and subadult plumages: *S. a. funerea* (Sclater), *S. a. salvini* (Ridgway), *S. a. ochrogyne* new subspecies, and *S. a. aethiops* (Sclater). In the *angolensis* subspecies group, *S. a. angolensis* (Linnaeus) is the only taxon recognized east of the Andes, with *S. a. torrida* (Gmelin) a synonym; *S. a. theobromae* new subspecies is named for a population isolated in the upper Magdalena Valley of Colombia.

Currently there are three species admitted in the genus *Oryzoborus,* a group of heavy-billed Neotropical finches in the subfamily Emberizinae. The smallest species, *O. angolensis,* the type of the genus, occurs from Mexico to Argentina and includes the nominal species *O. funereus* of earlier authors. The other two species, *O. crassirostris* and *O. maximiliani,* are considerably larger forms confined to South America, except for small disjunct populations of the latter species in Panama and Nicaragua. The seven subspecies of *O. maximiliani* were considered to be races of *O. crassirostris* until Meyer de Schauensee (1970) showed these two taxa to be sympatric, or nearly so, over a wide range.

Despite the obvious resemblance of *Oryzoborus* to members of the large genus *Sporophila,* in many works (e.g. Sharpe, 1888; Ridgway, 1901; Hellmayr, 1938) these two genera were separated by varying numbers of seemingly less similar genera, although in later treatments *Oryzoborus* has been placed immediately following *Sporophila* (Meyer de Schauensee, 1966; Paynter, 1970).

With the exception of the *angolensis* subspecies group, the males of *Oryzoborus* are all black in color, apart from a white speculum and white under the wing in some taxa, so that they resemble, for example, *Sporophila americana corvina.* Males of the *angolensis* group have chestnut on the

lower breast and belly, and males of several species of *Sporophila* likewise have chestnut in the underparts. As in *Sporophila,* the females of *Oryzoborus* differ in plumage from males and are generally dull brownish, similar to females of *Sporophila americana* and other species.

In reading through the generic descriptions given by Ridgway (1901:564, 603), which are not written in a comparative manner so that it is not evident which characters are "diagnostic," about the only difference one can find between *Oryzoborus* and *Sporophila* is in the "enormously thick and broad" bill of the former. This is not necessarily of generic value, however. In the proportions of the bill the differences between *O. angolensis* and *Sporophila americana* are scarcely any greater than between *O. crassirostris* and *O. angolensis* (Fig. 1). The species of *Sporophila* tend to have the culmen more curved than in *Oryzoborus,* but there is so much variation in bill shape within *Sporophila* itself (e.g. the peculiar *S. falcirostris*) that this appears to be of minor importance.

Perhaps the most telling evidence for a very close relationship between *Oryzoborus* and *Sporophila* was presented by Sick (1963:166), who found that hybridization between species of these two genera was not uncommon in Brazil. He discussed five wild-taken apparent hybrids between *O. a. angolensis* and *S. c. caerulescens,* two between *O. a. angolensis* and *S. lineola,* and one between *O. a. angolensis* and *S. ardesiaca.* Sick likewise called attention to the fact that the differences between the smaller forms of *Oryzoborus* and the larger forms of *Sporophila* were not nearly as great as had previously been supposed.

The structure of the skull in *Oryzoborus* and *Sporophila* is similar, although that of *Oryzoborus* is more robust, with a more sharply angled rostrum and broader anterior portions of the palatines. Again, there are striking differences between *O. angolensis* and *O. crassirostris.* The differences in skull structure between *Oryzoborus* and *Sporophila* are considerably less than those between the various species of the emberizine genus *Geospiza,* as illustrated by Bowman (1961).

Considering the broader generic limits now being admitted in the Passeriformes, I find it strange that *Oryzoborus* has continued to be recognized. Although the three species of *Oryzoborus* appear to be more closely related to each other than any one of them is to a particular species of *Sporophila,* they are surely part of a monophyletic assemblage that includes *Sporophila,* in which they represent only the extremes in size and crushing adaptations of the bill. I believe that it is best to emphasize the close relationship of these birds, and the fact that they constitute a single radiation, by uniting *Oryzoborus* Cabanis 1851 with *Sporophila* Cabanis 1844. The three species presently recognized in *Oryzoborus* therefore become *Sporophila angolensis* (Linnaeus), *Sporophila crassirostris* (Gmelin), and *Sporophila maximiliani* (Cabanis).

Fortunately, this creates no problems of homonymy, as I have found no duplication in *Oryzoborus* of any of the trivial names currently applied to *Sporophila*. However, Kenneth C. Parkes (*in litt.*) has drawn my attention to the fact that *Oryzoborus crassirostris magnirostris* Phelps and Phelps 1950, is preoccupied by *Coccoborus magnirostris* Swainson 1837, proposed as a new name for *Loxia angolensis* Linnaeus 1766. In accordance with the systematic conclusions outlined above, I propose:

Sporophila maximiliani parkesi, nom. nov.

to replace *Oryzoborus crassirostris magnirostris* Phelps and Phelps 1950.

Revision of the Subspecies of *Sporophila angolensis*

The Lesser or Thick-billed Seed Finch, *Sporophila angolensis*, includes two groups that were previously regarded as separate species. In the *angolensis* subspecies group the adult males have the lower breast and belly chestnut, whereas in the *funerea* subspecies group the chestnut is replaced with black. The *S. angolensis* group is found in most of tropical South America east of the Andes and in the upper Magdalena Valley of Colombia. The *S. funerea* group extends from southern Mexico through Middle America to western Colombia and Ecuador and east to the Magdalena Valley. I have dealt with the interesting interaction between these two groups in the Magdalena Valley in another paper (Olson, in press). Here I shall review the geographic variation within each of these two subspecies groups.

The *S. a. funerea* Subspecies Group

Because the adult males are almost entirely black, they are not useful for showing plumage variation, and at present *S. a. funerea* is not subdivided. Females and subadult males, however, show considerable geographic variation which has been overlooked until now. At one time, Hellmayr (1911) admitted a southern race, *aethiops* (Sclater) based on coloration of females and alleged differences in bill size, for birds from western Colombia and western Ecuador, but he later considered that its recognition was not warranted (Hellmayr, 1938). Doubtless contributing to past difficulties in subdividing the *funerea* group is the fact that subadult males are more intensely colored than females in the same population, so that comparison must be made sex for sex; otherwise there would appear to be considerable overlap in characters. Subadult males were not infrequently missexed by earlier collectors, who may have made their determinations by plumage rather than by gonads. Individuals that are apparently missexed are not difficult to detect, given sufficient material. In any case, adequate series of correctly sexed specimens permit the identification of no less than four subspecies within the *funerea* group. Names are available for all but one of these, which, as it turns out, is the most widespread form and the best represented

Fig. 1. Bills of selected species of *Sporophila* to show the gradation in size between typical *Sporophila* and the forms of "*Oryzoborus*": (left to right) *S. americana corvina, S. angolensis ochrogyne, S. crassirostris, S. maximiliani nuttingi.*

in collections. For the *funerea* group, the following descriptions, and the lists of specimens examined, refer to females and subadult males only.

Sporophila angolensis funerea (Sclater)

Oryzoborus funereus Sclater 1859, Proc. Zool. Soc. London 1859:378. Suchapam, Oaxaca, Mexico.

Characters.—Females and subadult males with underparts lighter, more brownish, and less intensely reddish than in *salvini* or *aethiops,* but darker than in *ochrogyne*. Dorsum less reddish than in *salvini* or *aethiops* but not as pale and grayish as in *ochrogyne*.

Range.—The Caribbean slope of southeastern Mexico, Guatemala, Belize, and Honduras.

Specimens examined.—MEXICO. TABASCO: Teapa (1, USNM; 1, FM). VERA CRUZ: La Gloria, 45 mi S of Acayucán (1, WFVZ). GUATEMALA. Secanquim (1, AMNH); Finca Chama (1, AMNH). BELIZE (BRITISH HONDURAS). Near Manatee Lagoon (5, CM); All Pines (2, CM); Sittee River, Freetown (1, CM). HONDURAS. Lake Yojoa (1, CM); Planes (2, CM); La Ceiba (1, CM).

Remarks.—The two females from Mexico are somewhat more reddish dorsally than the remainder of the series, but the material is insufficient to determine if this character is constant.

Sporophila angolensis salvini (Ridgway)

Oryzoborus salvini Ridgway 1884, Proc. U.S. Nat. Mus. 6:401. Los Sábalos, Nicaragua.

Characters.—Females and subadult males much more richly colored than any of the other subspecies; underparts, particularly of the subadult males, deep reddish chestnut; most similar to *aethiops* but not as sooty below, and dorsum more reddish.

Range.—Southern Nicaragua, Costa Rica except in the extreme southwest, and the Caribbean coast of Panamá east at least to western Veraguas.

Specimens examined.—NICARAGUA. Escondido River (6, USNM); Greytown (1, USNM); Los Sábalos (2, USNM—cotypes; 1, AMNH). COSTA RICA. SARAPIQUI: 1.5 mi SE of Puerto Viejo (1, WFVZ); LIMON: Limón (5, AMNH; 2, FM); Cariari (3, WFVZ); CARTAGO: Juan Viñas (1, MCZ); PUNTARENAS: Boruca (2, MCZ). PANAMÁ. BOCAS DEL TORO: Almirante (5, USNM); Changuinola (1, USNM); VERAGUAS: Guabal, Río Calovévora (1, AMNH).

Remarks.—The two specimens from Boruca, Costa Rica, and that from Changuinola, Panamá, while nearest *salvini,* appear to show signs of intergradation with the following subspecies. The birds from the western Caribbean coast of Panamá are instantly separable from those of the rest of the country by their much richer coloration. The subspecies *salvini* and *ochrogyne* exhibit a pattern of distribution common to a number of other species, whereby a northern, usually darker, form extends into Panamá only along the western Caribbean coast and is replaced elsewhere in the country by a different subspecies that may extend into southwestern Costa Rica.

Sporophila angolensis ochrogyne, new subspecies

Holotype.—USNM 410128, female, collected 25 March 1949 at Utivé, Río Cabobré, Panamá Province, Panamá, by Alexander Wetmore and W. B. Perrygo (original number 14402).

Characters.—Females and subadult males paler than any of the other subspecies of the *funerea* group, underparts deep buffy, not chestnut; brown of breast and upperparts suffused with a grayish olivaceous wash, not reddish, and much lighter than in other forms.

Range.—Southwestern Costa Rica, Panamá except the western Caribbean coast, and western Colombia south at least to Buenaventura and east as far as the Magdalena River Valley.

Etymology.—Greek, *ochros,* pale, and *gyne,* female, in reference to the pallid coloration of the females of this subspecies. The name is a noun in apposition.

Specimens examined.—COSTA RICA. PUNTARENAS: Helechales (1, WFVZ); 13 km S of Palmar Sur (1, WFVZ). PANAMA. VERAGUAS: Wilcox Camp, San Lorenzo River [Caribbean slope] (1, AMNH); Soná (2, USNM); Isla Cébaco (1, USNM); Isla Coiba (3, USNM; 1, AMNH); Paracoté (1, CM); CANAL ZONE: Gatun (7, USNM); Bohio (1, USNM);

Curundu (1, USNM); Juan Mina (2, USNM); Pac, K-6 road (1, USNM). PANAMA PROVINCE: Chico (1, USNM); Utivé, Rio Cabobré (1, USNM—holotype); ARCHIPIELAGO DE LAS PERLAS: Isla San José (5, USNM); COLON: Colón (1, FM); Portobello (1, USNM); SAN BLAS: Mandinga (1, USNM). COLOMBIA. CHOCO: Atrato River (1, AMNH); Andagoya (5, CM); El Tambo (1, CM); ANTIOQUIA: Arenosas (1, AMNH); La Bodega, N side of Río Negrito, Highway Sonson-Nariño (1, USNM); El Pescado, 12 km below Puerto Valdívia (1, USNM); Valdívia, Sevilla (1, USNM); Hacienda Belén, 8 mi W of Segovia (1, USNM); CALDAS: Hacienda Sofia, Río Samaná (1, USNM); VALLE: Buenaventura (1, AMNH); CORDOBA: Nazaret, 12 mi NW of Tierra Alta, Río Sinú (1, USNM); Tierra Alta, Río Sinú (1, USNM); Quebrada Salvajin, Río Esmeralda, Upper Río Sinú (2, USNM); BOLIVAR: Norosí (2, USNM); Regeneración, Quebrada San Marcos, Lower Río Cauca (2, USNM); La Raya, Río Cauca (1, USNM).

Remarks.—Wetmore (1957) commented on the larger size of the bill in four specimens from Isla Coiba, Panama, and felt that these birds probably should be recognized as a distinct subspecies, an action he failed to take in the absence of a more adequate sample. He noted one individual from the Canal Zone and one from Colombia that also had larger bills than normal. I examined a female specimen of *S. a. angolensis* from the upper Caura River, Venezuela (CM 32398), in which the bill was grotesquely enlarged, being almost the size of that of *S. c. crassirostris,* although the wing was of normal size for *angolensis*. While such specimens as these represent aberrations, the Coiba birds probably do not, but, like Wetmore, I would prefer to see more material before naming this population.

I have been unable to distinguish females and subadult males of *ochrogyne* from those of *angolensis* (including *torrida*), although the adult males differ markedly. Virtually the only place where this becomes a problem is in the Magdalena Valley, where both types of adult males occur, along with intergrades (see Olson, in press).

Sporophila angolensis aethiops (Sclater)

Oryzoborus aethiops Sclater 1860, Proc. Zool. Soc. London 1860:88. Nanegal, Ecuador.

Characters.—Females and subadult males darker than *funerea* and much darker than *ochrogyne*; similar to the widely disjunct *salvini* but more sooty, less intensely reddish above and below.

Range.—Southwestern Colombia in Nariño, and western Ecuador.

Specimens examined.—COLOMBIA. NARIÑO: La Guayacana (2, LSU; 2, WFVZ); Barbacoas (1, AMNH). ECUADOR. ESMERALDAS: Esmeraldas (1, AMNH); 10 km N of Quininde on Quininde-Esmeraldas highway

(1, USNM); LOS RIOS: Hacienda Puerto Nuevo, Abras de Mantequilla, ca. 3 km NE of Vinces (1, USNM); GUAYAS: Bucay (1, ANSP); San Rafael, near Tenguel, 7 km S of Balao (1, USNM); Naranjo (1, AMNH); DEL ORO: Zaruma (1, AMNH); Río Pindo (1, AMNH); Portovelo (1, AMNH).

The *S. a. angolensis* Subspecies Group

In this group the adult males have chestnut rather than black bellies. I do not recognize any subspecies, other than the nominate one, in the extensive range of the species east of the Andes. A very distinctive new subspecies, isolated in the upper Magdalena Valley, is described below.

Sporophila angolensis angolensis (Linnaeus)

Loxia angolensis Linnaeus 1766, Syst. Nat. 12th ed. 1:303. "Angola" = eastern Brazil.

Loxia torrida Scopoli 1769 Ann. I Hist. Nat. page 140. [Venezuela].

?*Oryzoborus polinskii* Sztolcman 1926, Ann. Zool. Mus. Pol. Hist. Nat. 5:230. Yurimaguas, Peru.

Characters.—Adult males with brown portions of underparts rich, deep chestnut, rather than chocolate-brown.

Range.—Almost all of South America east of the Andes and south to northern Argentina.

Specimens examined.—The majority of those in the institutions listed in the acknowledgments.

Remarks.—Throughout most of the literature of the species, there have been two races recognized east of the Andes: *angolensis,* which is stated to range from central and eastern Brazil through eastern Bolivia, Paraguay, and northern Argentina; and *torrida,* which is said to occur in Amazonian Brazil, northeastern Peru, Colombia, Venezuela and the Guianas. According to Hellmayr (1938:246), *torrida* is "very similar to *angolensis* but slightly smaller, the tail especially shorter, and with decidedly smaller, less bulky bill." With the very large series available to me, I was unable to discern any color differences in adult males and I could see no consistent difference in the size of the bill. Furthermore, I found no significant difference in the tail lengths of samples of adult males from the ranges of the two putative subspecies (Table 1). Although the northern birds are very slightly smaller on the average, there is broad overlap and it would be impossible to make any distinction based on size. The single bird available from Paraguay had a tail 58 mm long, which exceeds that of any of the others measured; it is possible that the birds from the southernmost part of the range in Paraguay and Argentina are larger, but there is insufficient material to ascertain this.

Table 1.—Tail length (mm) of adult males of *Sporophila angolensis*.

	n	Range	Mean
Eastern Brazil (*angolensis*)	6	52–56	54
Bolivia (*angolensis*)	5	51.5–56	53
Venezuela and Trinidad ("*torrida*")	6	51.5–53	52
French Guiana ("*torrida*")	9	50.5–53.5	52

I cannot accept the validity of *torrida* and consider it to be a synonym of *angolensis*.

There was some variation in the coloration of females and subadult males, with certain individuals from Peru being considerably darker than typical birds. There is a possibility that the name *polinskii* (Sztolcman) is valid. However, I could find no logical pattern to the distribution of dark individuals in Peru. Perhaps the molt patterns are different in portions of the Peruvian range of the species, and with better material it could be possible to differentiate subspecies with specimens known to be in truly comparable plumage. In any case, for the present I do not recognize any subdivision of *S. angolensis* east of the Andes.

Sporophila angolensis theobromae, new subspecies

Holotype.—USNM 582224, adult male, collected 1 March 1968 at Melgar, Tolima, Colombia, by C. J. Marinkelle (received in exchange from WFVZ).

Characters.—Adult males nearest *S. a. angolensis* but lower breast and belly decidedly chocolate-brown, rather grayish, not chestnut.

Range.—Known only from two specimens from the upper Magdalena River Valley in Tolima and Huila, Colombia.

Specimens examined.—Holotype, and a single additional adult male (USNM 447682) from La Plata, Huila, Colombia, collected 14 April 1952 by M. A. Carriker, Jr.

Etymology.—Of *Theobroma*, the genus of the cacao or chocolate tree (literally "food of the gods" from Greek *theos*, god, and *broma*, food), in reference to the coloration of the underparts in this bird.

Remarks.—This very isolated population is the only representative of the *angolensis* group from west of the eastern Andes. Farther toward the mouth of the Magdalena, only black-bellied individuals or intergrades are known (see Olson, in press).

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